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10/763,027	01/21/2004	Wolfgang Maus	E-80044	9168

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EXAMINER

MERKLING, MATTHEW J

ART UNIT	PAPER NUMBER
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1795

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/763,027	Applicant(s) MAUS, WOLFGANG	
	Examiner MATTHEW J. MERKLING	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In amended claim 1, Applicant added the limitation "said contraction limiter having a surface-specific heat capacity greater than a surface-specific heat capacity of said matrix". Applicant disclosed on page 5, lines 19-23 of the specification:

"it is advantageous under some circumstances for the surface-specific heat capacity of the contraction limiter to be placed in a region lying between the surface-specific heat capacity of the matrix and that of the housing."

In other words, Applicant disclosed that the specific heat of the contraction limiter is in a region between the specific heat of the matrix and housing, but did not disclose that the surface-specific heat capacity of the contraction limiter is greater than that of the matrix.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-6, 8, 12-14 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (US 5,486,338) in view of Cheung (US 4,193,793).

Regarding claim 1, Ota discloses a honeycomb body comprising:

a housing (2);

a matrix (corrugated foils (8) and flat sheets (7), inside housing) having a diameter and connected to said housing (see Figs. 1, 2, 3, 5, 6); and

at least one contraction limiter (5, 9a, 9b, 10, 11) causing an outwardly directed tensile stress in at least one part of said matrix (see Figs. 1, 2, 3, 5, 6).

Ota, however, does not explicitly state the specific heat capacity of the matrix in relation to the contraction limiter.

Cheung also discloses a honeycomb body that is utilized for purification of exhaust gases (see abstract).

Cheung teaches utilizing a low specific heat capacity catalyst carrier (col. 13 lines 58-62) in order to reduce the startup time needed for the purification catalyst to become active (col. 13 lines 16-20).

As such, decreasing the specific heat capacity of the catalyst substrate of Ota in relation to the other support structures of a catalytic converter, as taught

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by Cheung, would have been obvious to one of ordinary skill in the art at the time of the invention in order to reduce the heat-up time of the catalyst substrate in order for the purification reaction to become active.

Regarding limitations recited in claim 1 which are directed to a manner of operating disclosed system, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP §2114 and 2115. Further, process limitations do not have a patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim.

Regarding claim 2, Ota, as discussed in claim 1 above, further discloses said matrix (8,7) is connected to said housing (3) by said contraction limiter (cushion member (5) and joints (9a)).

Regarding claim 3, Ota, as discussed in claim 1 above, further discloses said contraction limiter (11) has a first end region (11b) connected to said matrix (see Fig. 11) resulting in a connecting region, and a second end region (11a) connected to said housing (2, see Fig. 11) resulting in a fastening region).

Regarding claim 4, Ota, as discussed in claim 1 above, further discloses said contraction limiter (11) and said matrix (3) have a common connecting region (11b, see Fig. 11); and

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said matrix (3) has walls (7) connected to one another by joining connections (corrugated foil (8)), the tensile stress being applied through said common connecting region.

Regarding claim 5, where the claimed and prior art product(s) are identical or substantially identical, or are produced by identical or substantially identical process(es) the burden of proof is on applicant to establish that the prior art product(s) do not necessarily or inherently possess the characteristics of the instantly claimed product(s), see *In re Best*, 195 USPQ 430.

Regarding claims 6 and 21-23 Ota, as discussed in claim 1 above, further discloses said contraction limiter (cushion sections 11) and said matrix (3) have a common connecting region (11b), said common connecting region is disposed close to an end side of said matrix (Ota discloses said cushion sections and joining sections are provided over the entire axial length i.e. up to the edge of said matrix, as pictured in Figs. 7 and 8, see col. 5 lines 40-44).

Regarding claim 8, Ota, as discussed in claim 1 above, further discloses:

said matrix (3) has a circumference (see Fig. 2); and

said contraction limiter (5, 6 in Fig. 1) is one of a plurality of contraction limiters (see Fig. 10) disposed axially one behind another (see Fig. 1), with an offset with respect to one another in a direction of said circumference of said matrix (see Fig. 11).

Regarding claim 12, Ota, as discussed in claim 1 above, further discloses said matrix (3) has walls formed of at least partially structured sheet-metal foils (metal

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honeycomb, see abstract) stacked and/or coiled forming channels through which a gas can flow (honeycomb, see Fig. 3).

Regarding claim 13, Ota, as discussed in claim 12 above, further discloses said matrix (3) is at least partially surrounded by an outer structured foil (foil (7) see Fig. 2).

Regarding claim 14, Ota, as discussed in claim 12 above, further discloses said sheet-metal foils have a thickness of less than 0.06 mm (.05mm, col. 5 line 50-52).

5. Claims 1-20 and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cyron et al. (US 4,795,615) in view of Cheung (US 4,193,793).

Regarding claims 1 and 27, Cyron discloses a honeycomb body for exhaust gas purification, comprising:

a housing (2);

a matrix (1) having a diameter; and

at least one contraction limiter (4a, 4b, 4c) causing an outwardly directed tensile stress in at least one part of said matrix (see Fig. 1).

Cyron, however, does not explicitly state the specific heat capacity of the matrix in relation to the contraction limiter.

Cheung also discloses a honeycomb body that is utilized for purification of exhaust gases (see abstract).

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Cheung teaches utilizing a low specific heat capacity catalyst carrier (col. 13 lines 58-62) in order to reduce the startup time needed for the purification catalyst to become active (col. 13 lines 16-20).

As such, decreasing the specific heat capacity of the catalyst substrate of Cyron in relation to the other support structures of a catalytic converter, as taught by Cheung, would have been obvious to one of ordinary skill in the art at the time of the invention in order to reduce the heat-up time of the catalyst substrate in order for the purification reaction to become active.

Regarding limitations recited in claim 1 which are directed to a manner of operating disclosed system, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP §2114 and 2115. Further, process limitations do not have a patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim.

Regarding claim 2, Cyron, as discussed in claim 1 above, further discloses said matrix (1) is connected to said housing (2) by said contraction limiter (see Fig. 1).

Regarding claim 3, Cyron, as discussed in claim 1 above, further discloses said contraction limiter (4a, 4b, 4c) has a first end region (5a, 5b, 5c) connected to said matrix resulting in a formation of a connecting region, and a second end

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region (6, 7) connected to said housing resulting in a formation of a fastening region.

Regarding claim 4, Cyron, as discussed in claim 1 above, further discloses said contraction limiter (4a, 4b, 4c) and said matrix (1) have a common connecting region (5a, 5b, 5c); and

said matrix has walls (flat sheets) connected to one another by joining connections (corrugated sheets, col. 7 lines 1-10). Furthermore, where the claimed and prior art product(s) are identical or substantially identical, or are produced by identical or substantially identical process(es) the burden of proof is on applicant to establish that the prior art product(s) do not necessarily or inherently possess the characteristics of the instantly claimed product(s), see *In re Best*, 195 USPQ 430.

Regarding claim 5, where the claimed and prior art product(s) are identical or substantially identical, or are produced by identical or substantially identical process(es) the burden of proof is on applicant to establish that the prior art product(s) do not necessarily or inherently possess the characteristics of the instantly claimed product(s), see *In re Best*, 195 USPQ 430.

Regarding claim 6, Cyron, as discussed in claim 1 above, further discloses said contraction limiter (4c) and said matrix (1) have a common connecting region (5c), said common connecting region is disposed close to an end side of said matrix (see Fig. 1).

Regarding claim 7, Cyron, as discussed in claim 1 above, further discloses said matrix (1) and said housing (2) define an annular gap (8) between them and

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surrounding said matrix (see Fig. 1), and said contraction limiter seals said annular gap surrounding said matrix (sealing lips, see col. 3 lines 57-68).

Regarding claim 8, Cyron, as discussed in claim 1 above, further discloses:

said matrix (1) has a circumference (see Fig. 2); and

said contraction limiter is one of a plurality of contraction limiters (see 4a, 4b, and 4c) disposed axially one behind another (see Fig. 1), with an offset with respect to one another in a direction of said circumference of said matrix (being offset axially, inherently makes them offset circumferentially, as in, they are not sequential circumferentially).

Regarding claim 9, Cyron, as discussed in claim 1 above, further discloses said contraction limiter (4a, 4b, 4c are formed from metallic woven screens, col. 6 lines 7-10) and said matrix (carrier body 1, formed from ceramic, col. 4 lines 16-20) are formed from different materials.

Regarding claim 10, Cyron, as discussed in claim 1 above, further discloses said matrix is thermally insulated with respect to said housing (via insulating material, see claim 11 of Cyron).

Regarding claim 11, Cyron, as discussed in claim 1 above, further discloses said contraction limiter has a coefficient of thermal expansion which is different from said matrix (as mentioned above, the contraction limiter is composed of a metal screen and the matrix is formed from ceramic, which have a different thermal expansion).

Regarding claim 12, Cyron, as discussed in claim 1 above, further discloses said matrix (1) has walls formed of at least partially structured sheet-metal foils

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(metallic sheets, col. 6 line 59 – col. 7 line 10) stacked and/or coiled forming channels through which a gas can flow (honeycomb, see Fig. 3).

Regarding claim 13, Cyron, as discussed in claim 12 above, further discloses said matrix (1) is at least partially surrounded by an outer structured foil (brazing foil, col. 7 lines 19-21).

Regarding claim 16, Cyron, as discussed in claim 1 above, further discloses said matrix contains a catalytically active material (catalyst carrier, see abstract)

Regarding claim 17, Cyron, as discussed in claim 1 above, further discloses said contraction limiter (4a, 4b, 4c) has means for preventing crack propagation (no firm connection prevents damage/cracks due to the elastic means, see col. 2 lines 35-39).

Regarding claim 20, Cyron, as discussed in claim 12 above, further discloses said matrix (1) is at least partially surrounded by an outer structured foil (brazing foil, col. 7 lines 19-21) that at least partially forms said contraction limiter (brazing foil is used attach contraction limiter to housing and matrix, col. 7 lines 28-42).

Regarding claim 24, Cyron, as discussed in claim 8 above, further discloses said plurality of contraction limiters are flexible in a direction of an axis of said matrix for allowing a free axial contraction and expansion of said matrix (col. 3 lines 33-39).

Regarding claim 25, Cyron, as discussed in claim 1 above, further discloses the honeycomb body is used in an exhaust system of an internal combustion engine (col. 7 lines 49-52).

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Regarding claim 26, Cyron, as discussed in claim 1 above, further discloses said matrix is a metallic matrix (see abstract).

Regarding claims 14, 15, 18 and 19, while Cyron, as set forth in claim 12 above doesn't teach the thickness of the sheet metal of the honeycomb or the density of the cells in the honeycomb it was well known in the art at the time of the invention that these variables have a direct relationship to the performance of the honeycomb (for example, more cells, thinner walls yields more surface area for catalyst, as implied by Cyron, col. 6 lines 42-58). As such, these dimensions are not considered to confer patentability to the claim. These variables would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed size of the sheet metal and density of the cells cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the size and density of the cells to obtain the desired performance (In re Boesch, 617 F. 2d. 272,205 USPQ 215 (CCPA 1980)). Since it has been held that where general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (In re Aller, 105 USPQ 223).

Response to Arguments

6. Applicant's arguments filed 12/27/07 have been fully considered but they are not persuasive.

On page 10, paragraph 3, Applicant argues that Ota does not teach at least one contraction limiter configured for imparting an outwardly directed tensile stress in at least one part of the matrix. The examiner respectfully disagrees with this statement. The function of the "contraction limiters" of Ota are to hold the catalyst substrate in place, and therefore impart an outward directed tensile stress to the matrix (see Fig 2, for example where the contraction limiter 9b exerts an outward force on the matrix 3).

On page 11, paragraph 3, Applicant states that the catalyst carrier body of Cyron is made of ceramic and further makes arguments regarding the specific heat of the catalyst carrier. The examiner respectfully disagrees with these statements. Cyron clearly states that the catalyst carrier body is not made from ceramic (see col. 1 lines 11-16).

Furthermore, on page 10, paragraphs 1 and 2, Applicant states that limitations regarding the expansion and contraction of the matrix provide a structural limitation to the claimed apparatus. The examiner respectfully disagrees with this statement.

More specifically, it is well known in the art that the degree of thermal expansion or contraction of a metallic apparatus is largely influenced by the change in temperature (see Cyron, col. 1 lines 30-38). As such, the limitation regarding the degree of thermal expansion/contraction is dependent on the temperature variation of the apparatus, and is therefore viewed as a limitation which is directed toward a manner of

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operating said apparatus and is not considered to confer patentability to the apparatus claim.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. MERKLING whose telephone number is (571)272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. M./
Examiner, Art Unit 1795

/Alexa D. Neckel/
Supervisory Patent Examiner, Art Unit 1795